FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

December 16 to December 29, 2012 (Weeks 51 & 52)

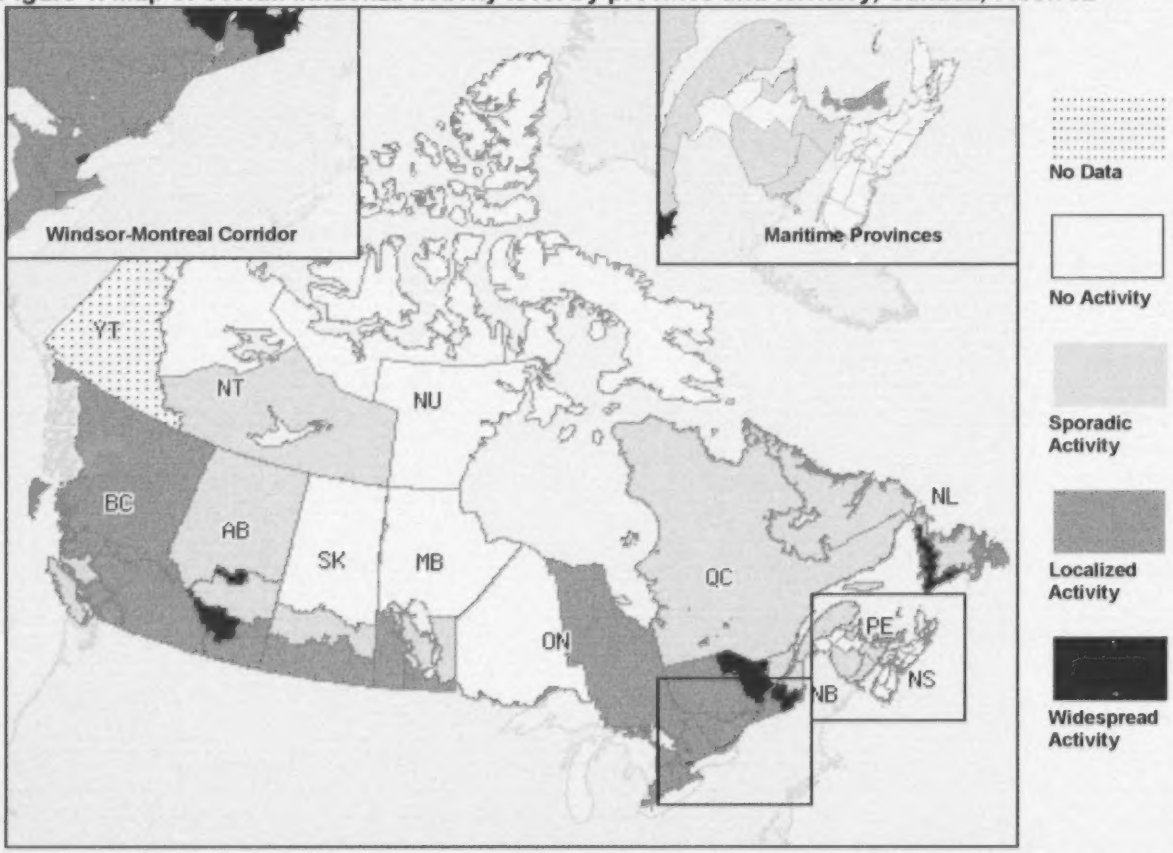
Overall Influenza Summary

- Influenza activity in Canada continues to rise with increases in all indicators in weeks 51 and 52.
- A total of 4632 laboratory detections of influenza were reported, of which 97.7% were for influenza A viruses, predominantly A(H3N2).
- 127 new influenza outbreaks were reported, 87 of which were in long-term care facilities.
- 114 new paediatric influenza-associated hospitalizations were reported through the IMPACT network, and 176 hospitalizations including 15 deaths among adults ≥20 years of age were reported through Aggregate surveillance.
- The ILI consultation rate increased, but remains within the expected range for this time of year.
- Similar to previous years, older adults (persons aged ≥65 years) are the most affected this season; with 41.3% of laboratory detections to date, increased outbreaks in long-term care facilities, higher hospitalization rates and a high proportion of antiviral prescriptions among those ≥75 years.

Influenza Activity (geographic spread) and Outbreaks

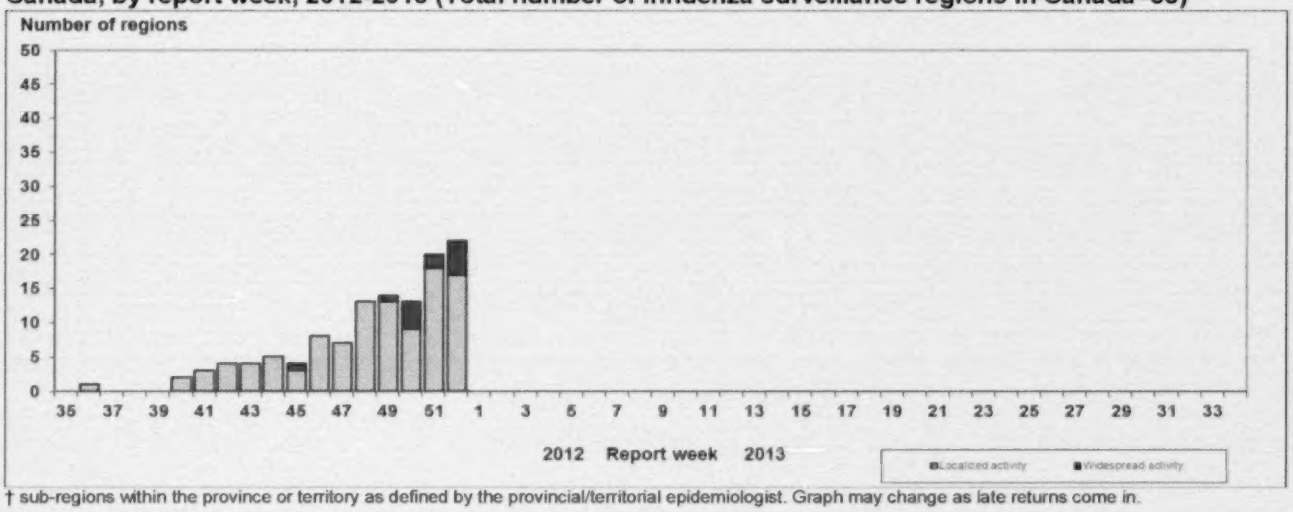
In week 51, two regions [in ON(1) and QC(1)] reported widespread activity and 18 regions [in BC(2), AB(3), SK(2), MB(1), ON(5), QC(3), NL(1) and PE(1)] reported localized activity. In week 52, five regions [in AB(2), ON(1), QC(1) and NL(1)] reported widespread activity and 17 regions [in BC(4), AB(1), SK(1), MB(2), ON(5), QC(2), NL(1) and PE(1)] reported localized activity. In week 52, no data was reported from Yukon (Figures 1 and 2). In weeks 51 and 52, 127 new influenza outbreaks were reported: 87 in long-term-care facilities, nine in hospitals, one in a school, and 30 in other facilities or communities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 52



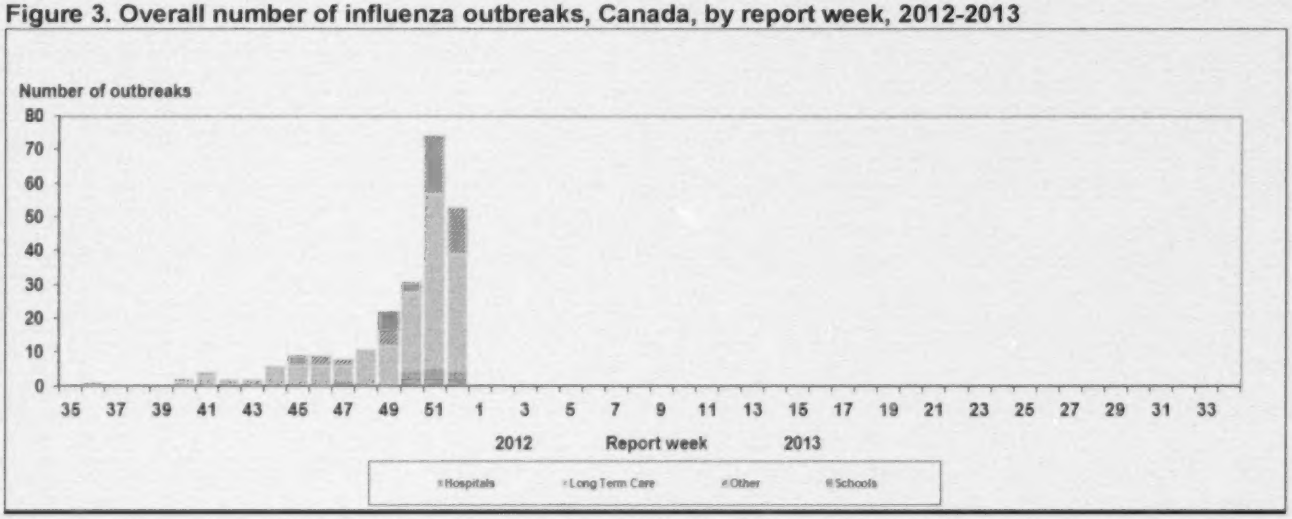
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests continued to increase from 24.2% in week 50 to 26.7% in week 51 and 31.1% in week 52 (Figure 4). Among the influenza viruses detected in weeks 51 and 52 (n=4632), 97.7% were positive for influenza A viruses [of which 25.7% were A(H3), 0.7% were A(H1N1)pdm09, and 73.6% were A(unsubtyped)]; and 2.3% were positive for influenza B (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 97.1% influenza A [36.7% A(H3), 1.1% A(H1N1)pdm09 and 62.2% A(unsubtyped)] and 2.9% influenza B (Table 1).

Detailed information on age and type/subtype was received for 6888 cases to date this season (Table 2). The proportions of cases by age group were as follows: 13.6% were < 5 years; 10.1% were between 5-19 years; 16.5% were between 20-44 years; 15.8% were between 45-64 years of age; 43.9% were ≥ 65 years.

The percentage of tests positive for RSV continued to increase from 8.9% in week 50 to 9.3% in week 51 and 11.3% in week 52. The percentage of tests positive for rhinovirus declined from 7.3% in week 50 to 6.7% in week 51 and 4.8% in week 52. Parainfluenza and coronavirus detections declined slowly over the past two weeks, and were both at 2.4% in week 52. Other percentages of positive tests remained low in week 52: adenovirus 1.0%; hMPV 0.8% (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	December 16 to December 29, 2012						Cumulative (August 26, 2012 to December 29, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	113	0	77	1	35	3	225	0	183	1	41	11
AB	438	0	342	16	80	33	1006	0	866	32	108	73
SK	154	0	109	0	45	9	303	0	232	3	68	17
MB	55	0	3	0	52	6	76	0	23	0	53	13
ON	1382	0	594	12	776	30	2548	0	1436	50	1062	56
QC	2290	0	5	1	2284	23	3673	1	122	0	3550	64
NB	21	0	17	1	3	1	32	0	20	5	7	1
NS	0	0	0	0	0	0	1	0	0	0	1	0
PE	11	0	11	0	0	1	18	0	18	0	0	1
NL	61	0	6	0	55	1	71	0	16	0	55	1
Canada	**4525**	**0**	**1164**	**31**	**3330**	**107**	**7953**	**1**	**2916**	**91**	**4945**	**237**

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (December 23 to December 29, 2012)					Cumulative (Aug. 26, 2012 to December 29, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	207	5	24	178	7	902	21	350	531	38
5-19	86	1	11	74	4	653	6	328	319	46
20-44	232	2	31	199	4	1102	23	441	638	33
45-64	234	0	22	212	5	1058	17	390	651	32
65+	880	1	83	796	9	2985	16	1003	1966	39
Unknown	2	0	0	2	0	25	2	20	3	0
Total	**1641**	**9**	**171**	**1461**	**29**	**6725**	**85**	**2532**	**4108**	**188**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

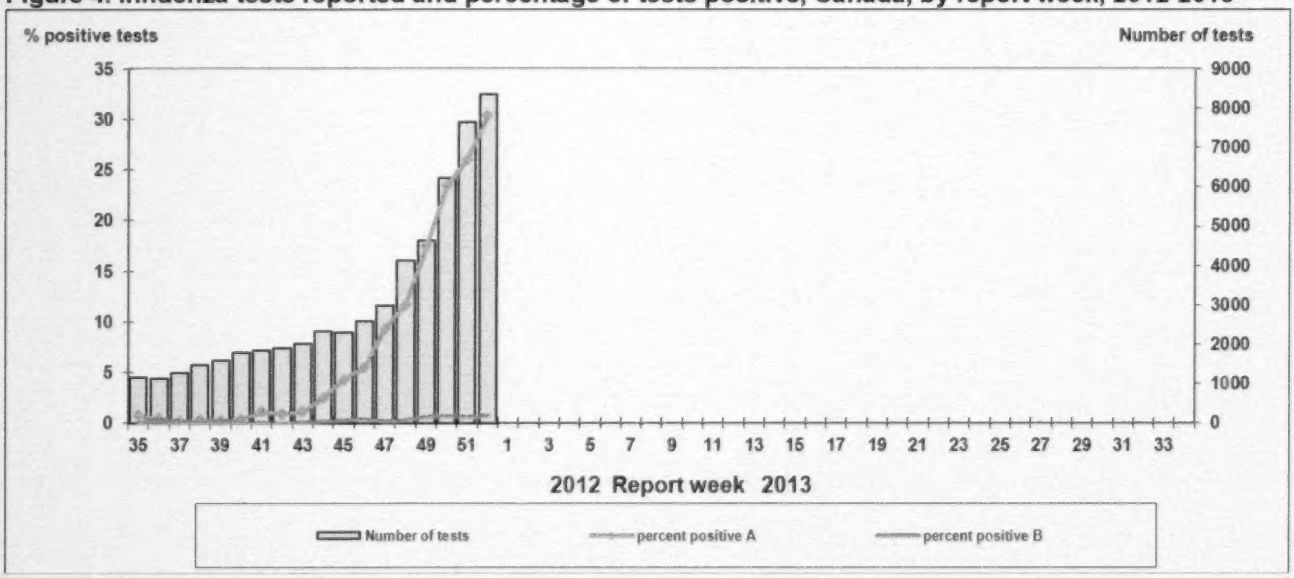
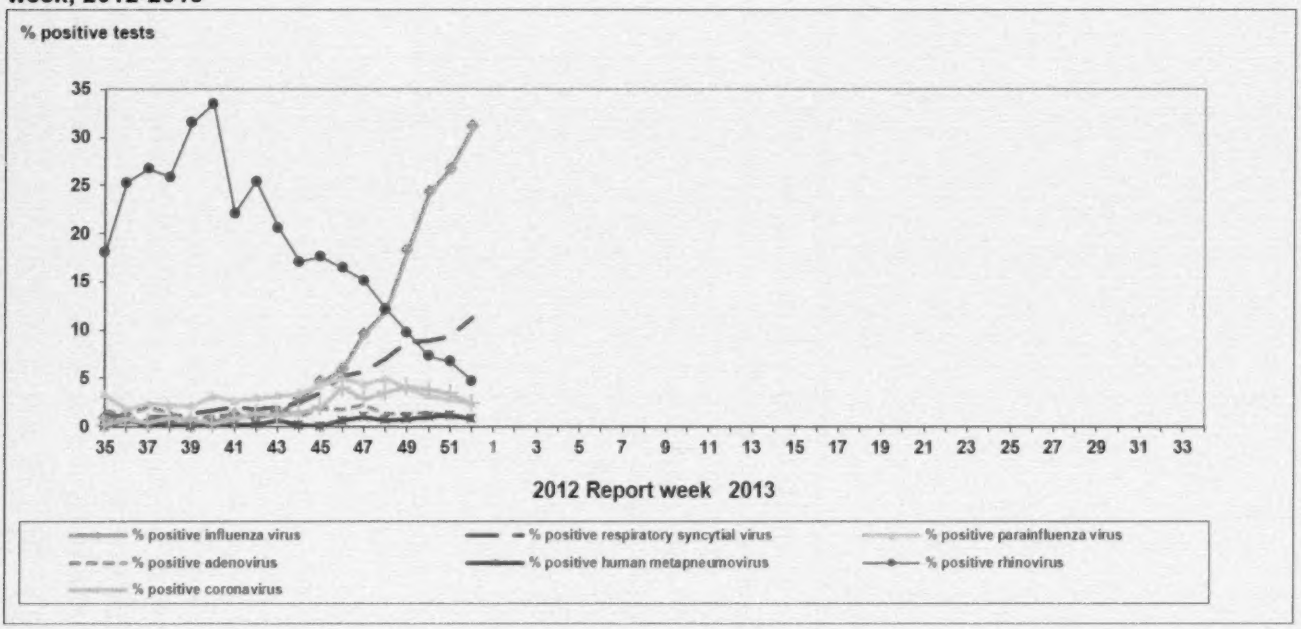


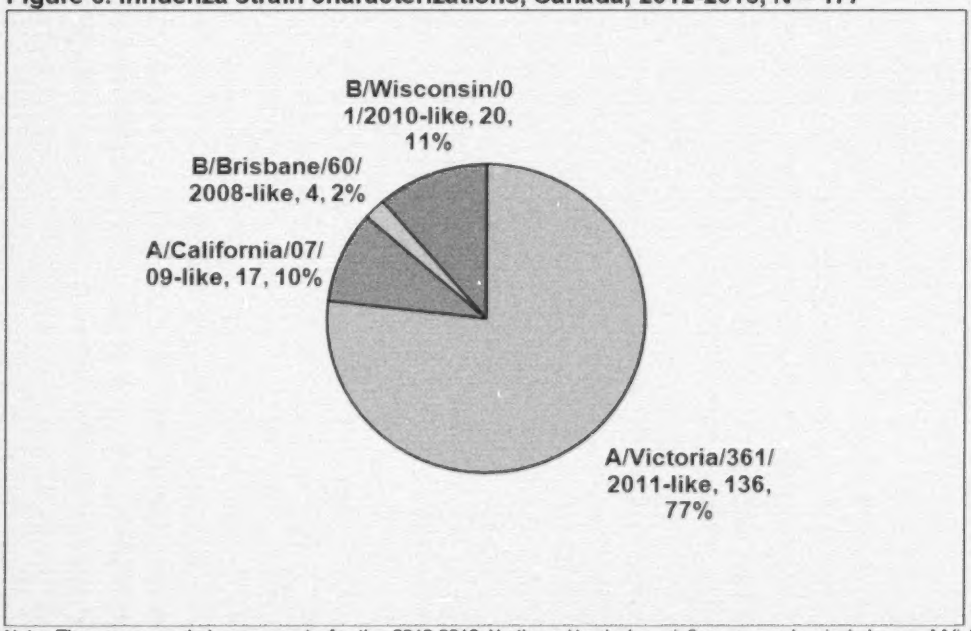
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 177 influenza viruses [136 A(H3N2), 17 A(H1N1)pdm09 , and 24 influenza B]. The 136 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011. The 17 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 20 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and four were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 177



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 128 influenza viruses for resistance to oseltamivir, and 127 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 149 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

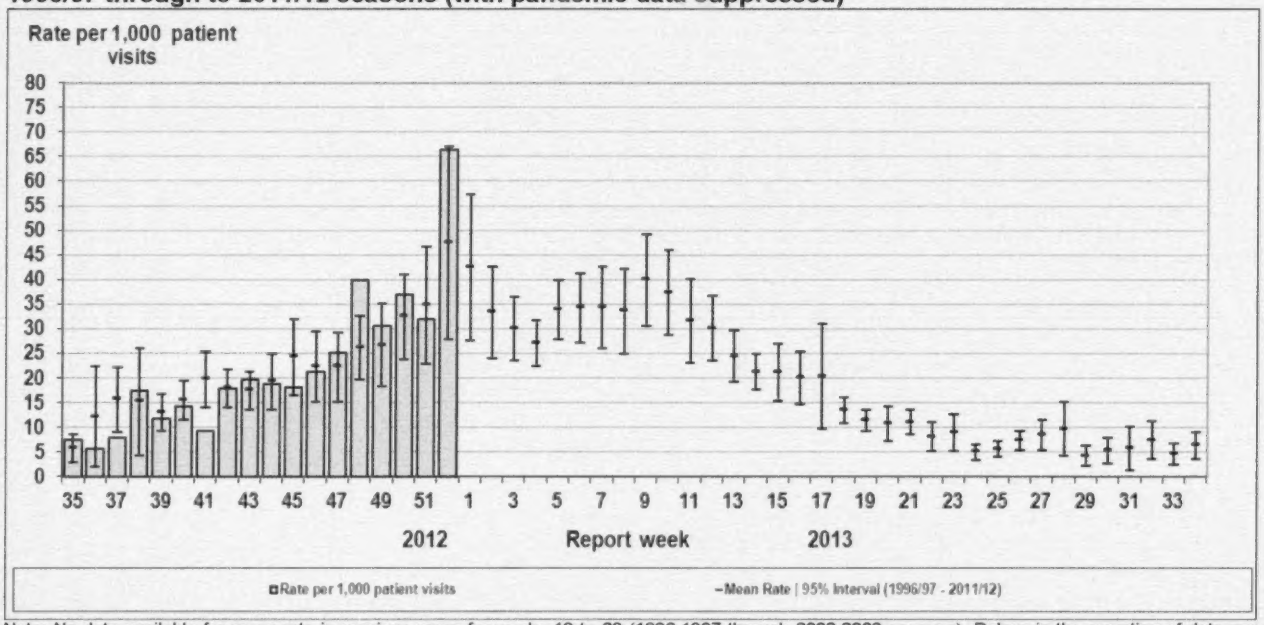
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	97	0	96	0	138	138 (100%)
A (H1N1)	13	0	13	0	11	11
B	18	0	18	0	NA*	NA*
TOTAL	128	0	127	0	149	149 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased from 36.8 ILI consultations per 1,000 patient visits in week 50 to 32.0 in week 51. The consultation rate increased to 66.3 in week 52; however due to holiday closures only 25% of sentinel physicians reported data. This rate is within the expected level for this time of year (Figure 7). In both week 51 and 52, the highest consultation rates were observed in children <5 years of age (121.2/1,000 in week 52) followed by children 5-19 years of age (90.3/1,000 in week 52).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

The Canadian antiviral prescription rate continued to increase from 102.5 antiviral prescriptions per 100,000 new prescriptions dispensed in week 50 to 137.1 in week 51 and 300.8 in week 52. Rates of 50-100/100,000 were observed during the peak period during the 2011-12 influenza season, when the percentage of positive influenza tests was between 18%-24% (data from April 2011 to present). Although the current proportion of antiviral prescriptions of 300.8/100,000 is higher than the peak observed last year, it continues to follow the trend of an increasing percentage of positive laboratory tests for influenza. In week 52, the antiviral prescription rate increased in all age categories except infants, and was highest among seniors ≥75 years at 545.3/100,000.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In weeks 51 and 52, 114 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network: 9 from BC, 21 from AB, 5 from SK, one from MB, 46 from ON, and 32 from QC. Among the 110 cases identified with influenza A, 91 (82.7%) were A(unsubtyped) and 19 (17.3%) were A(H3N2). Four cases were identified with influenza B. The age distribution is as follows: 19 cases (16.7%) under 6 months of age, 26 (22.8%) between 6-23 months, 33 (28.9%) aged 2-4 years, 20 (17.5%) aged 5-9 years, and 16 (14.0%) aged 10-16 years. Fourteen ICU admissions were reported during this two week period, two cases between 6-23 months, six aged 2-4 years, two aged 5-9 years, and four aged 10-16 years.

Since the start of the 2012-13 season, a total of 206 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 198 (96.1%) with influenza A [of which 36 (18.2%) were A(H3N2) and 162 (81.8%) were A(unsubtyped)], and eight (3.9%) with influenza B. The distribution of cases by age group is as follows: 36 (17.5%) <6 months of age, 44 (21.4%) age 6-23 months, 58 (28.2%) age 2-4 years, 39 (18.9%) age 5-9 years, and 29 (14.1%) age 10-16 years. Twenty-three of the 206 cases (11.2%) were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada.

Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In weeks 51 and 52, 241 laboratory confirmed influenza associated hospitalizations were reported in five provinces (AB, MB, ON, NL, PE); the majority of which were influenza A (97% 236/241). Of the 236 influenza A associated hospitalizations, 48% (114/236) were A(H3), 1.3% (3/236) were A(H1N1pdm09) and the remaining were A(unsubtyped). Half of the cases (51% 123/241) were aged 65+ and 16.6% (40/241) were aged between 0 and 4 years. Of the 86 cases with available data, 15 (17.4%) were admitted to the Intensive Care Unit (ICU). Sixteen deaths were reported in weeks 51 and 52, all in influenza A cases: one A(unsubtyped) aged 1-4 years; 15 in persons aged ≥65 years [(4 A(H3) and 11 A(unsubtyped)].

To date this season, 565 influenza-associated hospitalizations have been reported. The majority of cases have been influenza A (552/565; 97%). Approximately half of the cases (282/565; 49.9%) are ≥ 65 years of age. Of the 297 influenza A hospitalizations for which subtype was available, 95.6% (284/297) were due to A(H3) and 4.4% (13/297) were due to influenza A(H1N1)pdm09. Among the 173 cases with available data, there have been 26 hospitalisations for which admission to ICU was required, nine (34.6%) were persons ≥ 65 years of age. To date this season, 34 deaths have been reported: all in influenza A cases (13 H3; 21 unsubtyped). Of the 34 deaths, 88.2% (30/34) were persons aged ≥ 65 years of age, 5.9% (2/34) were adults aged 20-44 years, and 5.9% (2/34) were children aged 0-4 years.

Note: The number of influenza-associated hospitalizations reported by the Aggregate Surveillance System may include cases reported by the IMPACT network. Note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: Countries in the temperate regions of the northern hemisphere are reporting increasing influenza detections. In North America the United States, Canada and Mexico are reporting 25-30% of specimens positive for influenza although the distribution of influenza type/subtypes continues to differ, with A(H3N2) identified as the predominant strain in Canada, mixed proportions of A(H3N2) and influenza B detected in the United States, and influenza B predominant over A(H3N2) in Mexico. Influenza activity remains low in Europe, with approximately 10% of specimens positive, and nearly equal circulation of influenza A and B. North Africa and Eastern Mediterranean regions report low, but increasing influenza activity. In northern China, the proportion of influenza detections is steady over the past two weeks at approximately 10%, with influenza A(H3N2) predominant.

In central America, the Caribbean and tropical regions of south America, influenza activity continues to decline following the peak in late summer, with low levels of A(H3N2) and influenza B detected. The exceptions are Cuba and Peru where A(H1N1)pdm09 is predominant. Most countries in Sub-Saharan Africa report declining detections of influenza, primarily influenza B, except in Ghana where continued circulation of A(H1N1)pdm09 is reported. In South East Asia, influenza circulation continues to decline, with the exception of Sri Lanka and Viet Nam. Influenza in temperate regions of the southern hemisphere continues at inter-seasonal levels.
World Health Organization influenza update

United States: During week 52, influenza activity increased in the United States. Forty-one states reported widespread influenza activity, 7 states reported regional influenza activity, and the District of Columbia reported local activity. The national percentage of outpatient visits for ILI is 5.6% which is above the national baseline of 2.2%. Nine of 10 regions reported ILI above region-specific baseline levels, and New York City and 29 states experienced high ILI activity in week 52. The proportion of tests positive for influenza viruses was 31.6% in week 52. Of the positive influenza detections, 79.2% were positive for influenza A viruses. Of the 1234 influenza A viruses for which subtype information was available, 98.0% were A(H3) and 2.0% were A(H1N1)pdm09. Since October 1, 2012, the CDC has antigenically characterized 413 influenza viruses. Among influenza A viruses, 281 (94.3%) were A/Victoria/361/2011-like, two of which showed reduced titers; and 17 (5.7%) A/California/7/2009-like. Among influenza B viruses, 79 (68.7%) B/Wisconsin/01/2010-like belong to the Yamagata lineage of viruses; and 36 (31.3%) to the B/Victoria lineage. Two new influenza-associated paediatric deaths were reported during week 52. Eighteen cases have been reported to date this season, 11 with influenza A and 7 with influenza B.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 52, consultation rates for ILI and ARI (acute respiratory infection) continued to rise, following a west-to-east progression across the region. Although reporting was incomplete due to the holidays, countries mainly in the western part of the region reported co-circulation of A(H1N1)pdm09, A(H3N2) and influenza B. Since week 40, 4068 specimens of influenza viruses have been typed: 60% were influenza A and 40% were influenza B. Among the 1293 influenza A viruses for which subtype information was available, 51% were A(H3) and 49% were A(H1N1)pdm09. This is a significantly greater proportion of A(H1N1)pdm09 compared to the same period last season. The number of cases of severe acute respiratory illness (SARI) remains low, with none associated with influenza infection in week 52.
EuroFlu weekly electronic bulletin

Human Avian and Swine Influenza Updates

Human Avian Influenza
No new WHO report of Influenza at the Human-Animal Interface has been published since 17 December 2012.
WHO Influenza at the human-animal interface

Human Swine Influenza
No new human cases of infection with swine influenza viruses or variants were reported in week 51 or 52.
Centers for Disease Control and Prevention seasonal influenza report

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.